

OPERATOR'S MANUAL



M16A1 RIFLE

	PAGES
INTRODUCTION TO YOUR WEAPON	2-10
AMMUNITION	9
DISASSEMBLY	11-19
LUBRICATION	20-23
ASSEMBLY	24-29
MAGAZINE	30-31
PMCS	32-33
OPERATION	34-47
TROUBLESHOOTING	48-55

CHANGE
NO. 1

TM 9-1005-249-10
C1
HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC 20 March 1979

**OPERATOR'S MANUAL
M16A1 RIFLE**

TM 9-1005-249-10, April 1977, is changed as follows:

WARNING

DANGEROUS PROCEDURES

- Be sure the cam pin is installed in the bolt group. If it isn't, your rifle can still fire, but it could possibly explode, causing you harm.
- If you're using the blank ammo attachment, don't use any other ammo except the blank round, M200.
- DO NOT exchange or switch bolt assemblies from one M16A1 to another...It could cause damage to both you and the rifle.
- If your rifle stops firing with a live round in the chamber of a hot barrel, remove the round fast. However, during training, if you cannot remove it within 10 seconds, wait 15 minutes with the rifle pointing in a safe direction. This way you won't get hurt by a possible ammo cook-off, which could happen 10 seconds after contact with a hot chamber.
- Use only authorized ammo that is manufactured to U.S. specs.

- If your bolt fails to unlock and you try to free it by banging the bolt stock on the ground, keep yourself clear of the muzzle.
- If there's water in the barrel, don't fire the rifle. It could explode.
- If a noticeable difference in sound or recoil is experienced, **STOP FIRING**. Either condition could indicate an incomplete propellant burn and a bullet still in the bore. Retract bolt slowly and remove fired cartridge case. Clear weapon and check for unburned powder grains in the receiver or bore and for a bullet in the bore. Remove unburned propellant or bullet from bore before resuming firing, or barrel could explode. If bullet is lodged in bore, turn in rifle to direct support maintenance.

IF YOU GO BY ALL THE INSTRUCTIONS IN THIS BOOK, AND PERFORM PREVENTIVE MAINTENANCE (PM), YOUR M16A1 RIFLE WILL SHOOT, AND SHOOT AND SHOOT. IF YOU'VE DONE YOUR PART AND IT STOPS SHOOTING, TAKE YOUR M16A1 RIFLE TO YOUR SERGEANT. HE HAS THE ANSWERS.



FACTS ABOUT

The M16A1 rifle system consists of a rifle, one magazine and a sling. It is a lightweight, gas operated, air cooled, magazine fed, shoulder fired weapon that can be fired either automatic or semi-automatic.

Other features:

- The barrel assembly has an adjustable sight and a flash suppressor.
- Upper and lower receivers are easily opened for cleaning and inspection.
- Bolt group and barrel extension designed with locking lugs that lock bolt group to barrel extension.
- An aluminum receiver reduces the weight of the rifle.
- Some rifles are equipped with the Low Light Level Sight to increase effectiveness during periods of limited visibility.

YOUR RIFLE

Weights:

w/20 rd mag 3.5 Kg. (7.6 lb.)

w/30 rd mag 3.6 Kg. (7.9 lb.)

Max effective rate of fire:

Semi: 45-65 rds per min

Auto: 150-200 rds per min

Max effective range:

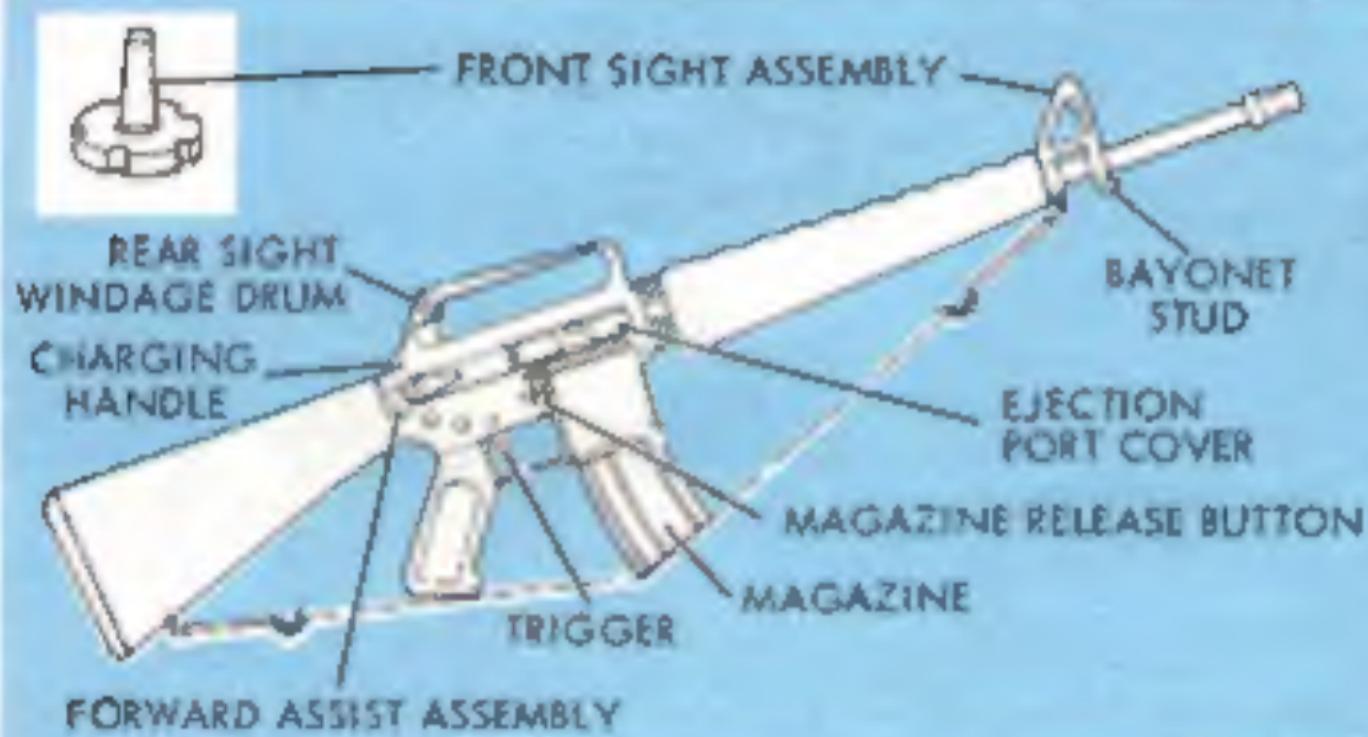
460 meters

Max range:

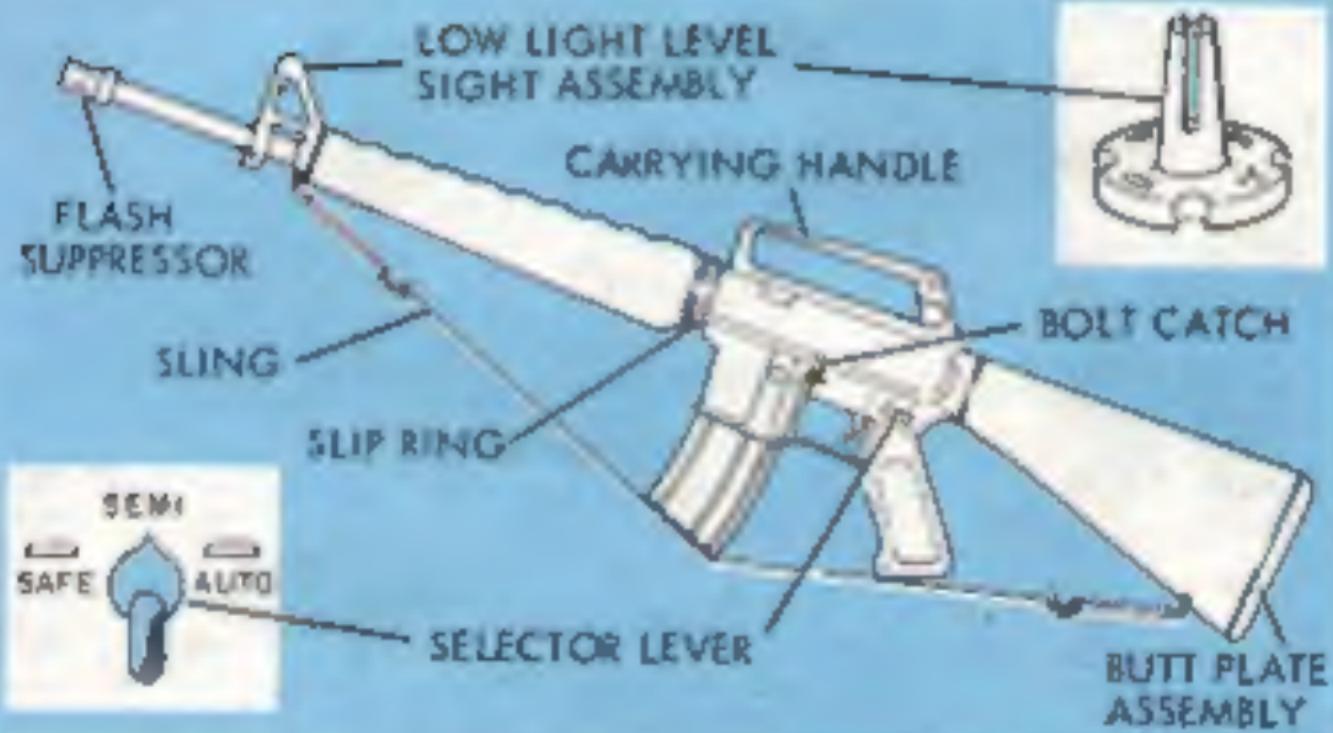
2653 meters



RIFLE PARTS AND



WHERE THEY ARE



ITEMS TROOP INSTALLED OR AUTHORIZED

Items which, at the discretion of the unit CO, may accompany the M16A1 rifle but are not subject to be turned in with the rifle

**FOR RIFLE WITHOUT STORAGE
BUTTSTOCK**

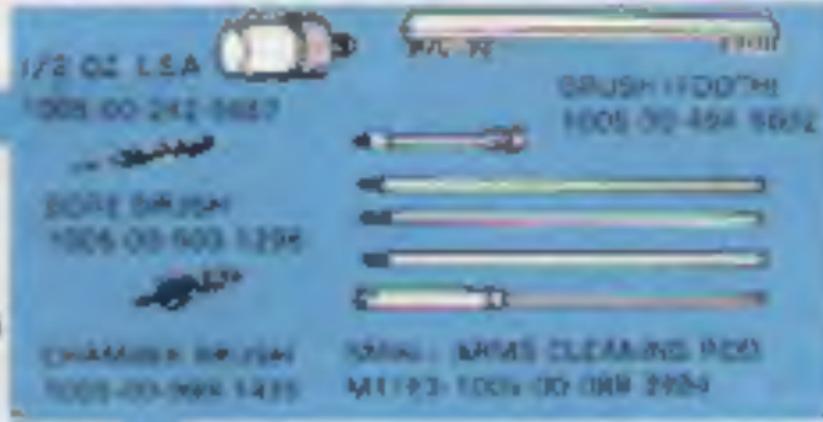


SMALL ARMS MAINTENANCE
EQUIPMENT CASE 4465-00-283-2364



MAGAZINE ASSEMBLY
1006-00-094 2287-29 RD
(ISSUED UNTIL STOCK
EXHAUSTED)

175 00 321 5004 30 40



SMALL BINS ACCESSORIES CASE
1005-00-403-5564



AUXILIARY EQUIPMENT



TOP-SLUNG ADAPTER KIT



RIFLE TRIPOD M7
1005-00-932-6078

One pair: M621LE CAP

6340 00 880 7809



MAN BAG

1005 00 052 4941 120 RD

1005 00 193 8006 110 RD

from your
UNIT SUPPLY

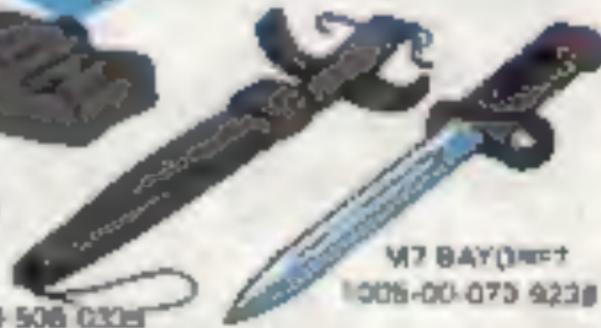


CARRYING CASE

1005 00 999 7430

SCABBARD

NOA1-1005-00-508 0328



M7 BAYONET

1005-00-073 9238

M15A2 BLANK FIRING ATTACHMENT (BFA)

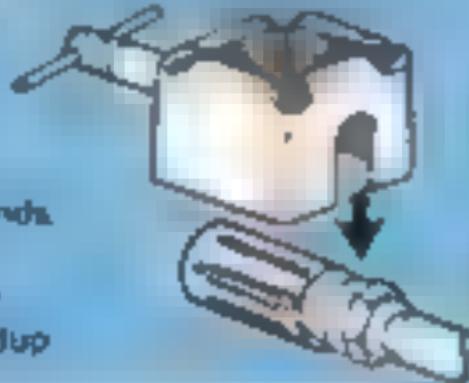


1005 00 118 6-92



1. Draw slide and slide all the way back

2. Hold barrel firmly against front of flash suppressor



CAUTION Do not use tools to tighten attachment
HANDS ONLY

3. Slide rear flash suppressor and blank tube into



NOTE After 50 rounds, check to see if it is still tight. Make sure to clean carbon buildup after each use.

AMMUNITION



WARNING

DO NOT FIRE:

- Se-roully corroded ammunition
- Dented cartridges
- Cartridges with loose bullets
- Cartridges exposed to extreme heat - Do not fire they have cooled

USE ONLY THE 5.56mm ammunition
as manufactured under U.S. specification



Ball
M193



Tracer
M196



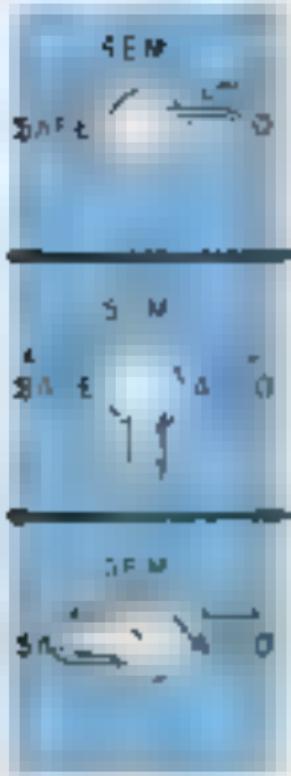
Dummy
M 99



Blank
M200

KEEP DRY, CLEAN AND FREE OF CAULD
YOUR LIFE DEPENDS ON IT

USE OF SELECTOR LEVER



safe

Selector lever must be on safe whenever loading and unloading.

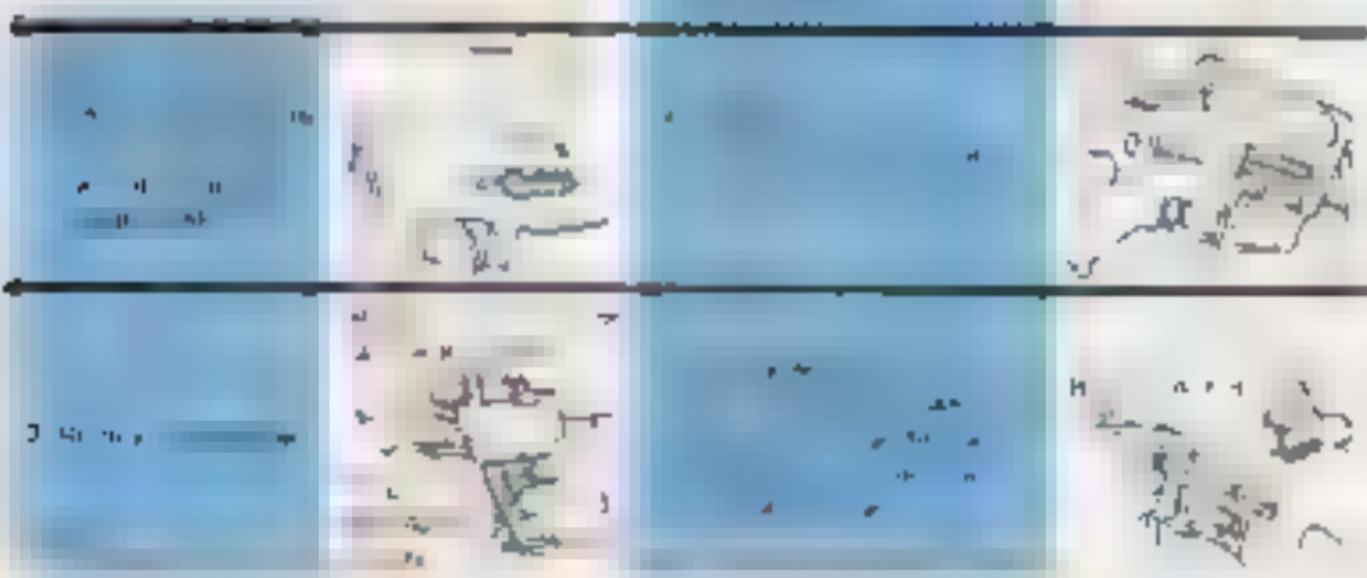
semi-automatic

Selector lever must be on semi-automatic when magazine is pulled.

automatic

Selector lever must be on automatic when magazine is empty and trigger is released.

CLEAR YOUR RIFLE



DISASSEMBLY

first

**CLEAR
YOUR
RIFLE**

NOTE →

Remove & clean
only if dirt &
corrosion can be
seen through vent
holes



2 Remove sling



3 Remove handguards



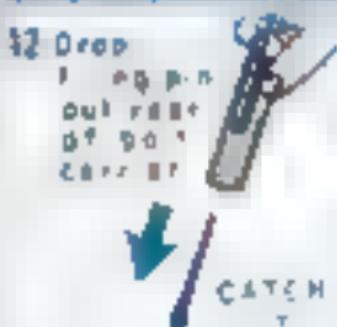
DISASSEMBLY cont.



10 Remove
locking pin retaining pin



11 Put bolt assembly
in lock position



12 Drop
locking pin
out side
of bolt
carrier

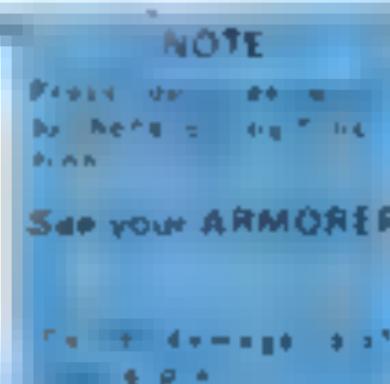
CATCH



13 Remove bolt cam pin



14 Remove bolt assembly
from carrier



CLEAN...INSPECT...LUBE

Within the [code editor](#) you can [run](#) and [test](#) your code.

After firing, clean your weapon for 3 consecutive days with R-See Bore Cleaner (RBC). Wipe dry and lube according to lubrication instructions.



If any parts are missing or defective see your ARMORER.

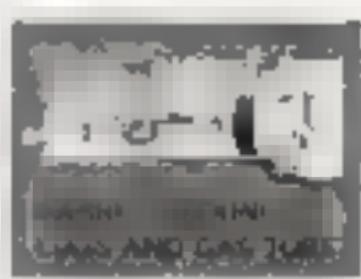
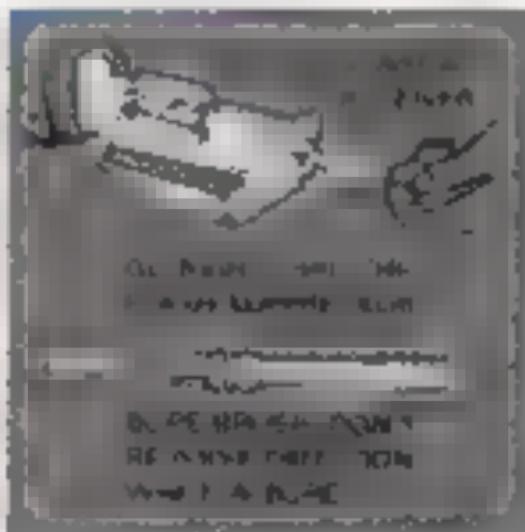
THOROUGH CLEANING

upper receiver



CLEAN WITH RBC

- All Areas of Powder Fouling, Corrosion, Dirt & Rust
- Bore & Chamber
- Locking Lugs
- Gas Tube

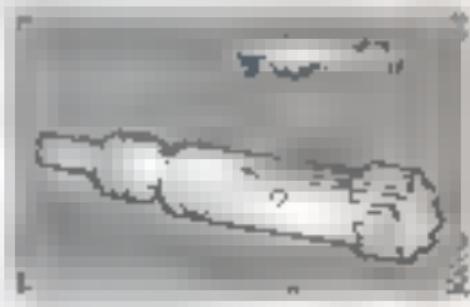


Use a soft wire brush to get out the buildup of powder along gas tube, get barrels and bolt from bottom of barrel.

THOROUGH CLEANING

bolt carrier group

- Outer & inner
Surfaces of Bolt
Carrier
- Carrier Key
- Firing Pin Recess
and Firing Pin
- Firing Pin Hole
(Use Pipe Cleaner
There)
- Carbon Deposits &
Dirt from Locking
Lugs
- Areas Behind Bolt
Ring and Under Lip
of Extractor



THOROUGH CLEANING

lower receiver group

- All Areas of Powder Fouling, Corrosion and Wear
- Wipe Dirt from Trigger Mechanism
- Clean Buffer and Guide Crown Receiver Extension

CALIFORNIA

Do not use wire brush or any type of abrasive material to clean aluminum surfaces.



LUBE GUIDE



Under 0° F but the coldest arctic conditions, LSA is the lubricant to use on your rifle. Remember to remove excessive oil from the bore before firing.

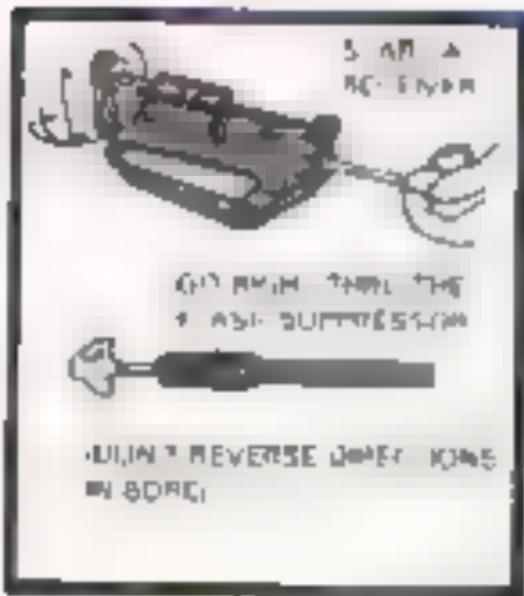
LSA Lubricating oil semi-fluid weapons

LAW Lubricating oil Arctic weapons

gum cube A film of oil barely visible to the eye

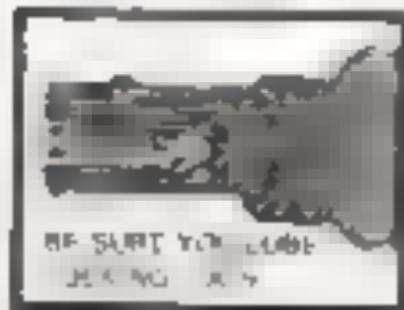
Grease cube Heavy enough so that it can be spread with the finger

LUBRICATING upper receiver



LIGHT Y LUBE

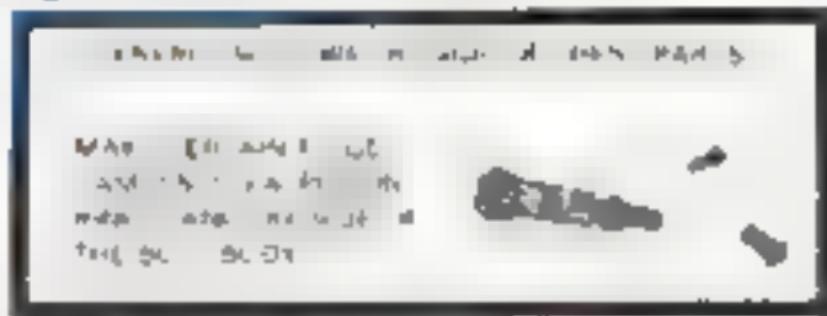
BORE & CHAMBER OUTER SURFACES
OF BARREL AND FRONT SIGHT SURFACES
UNDER HANDGUARD DEPRESS FRONT
SIGHT DETENT SEVERAL TIMES TO WORK
LUBE INTO THE SPRING



LUBRICATING

bolt carrier group

CAUTION



WHAT IS A BCG?



AN ASSEMBLY

LUBRICATE THE BCG GEARING AND THE
SLIDE AND RIFLE BARREL AREA. DO NOT
USE CARELESS METHODS. DO NOT
LUBRICATE THE AREA OF BOLT

LUBRICATING

lower receiver group



ON TO SET LINE

TAKE DOWN AND PILOT PINS



INSPECT-before assembly

WARNING DO NOT interchange tools from families



• Cracks or breaks
especially in the area
immediately above
the crimping or extending
area on the end of the shaft



BAD PIN • Pin cracked or broken
end



BAD PIN • Pin cracked or broken
end



ANOMALY • Cracked, chipped
or missing



• CRIMP TIP
• Use a crimp or tool chipped or broken
edges in the area of the tip has engaged
the cartridge will

• PAPERS ARE M N T F T F F T L K A M R F R

ASSEMBLY



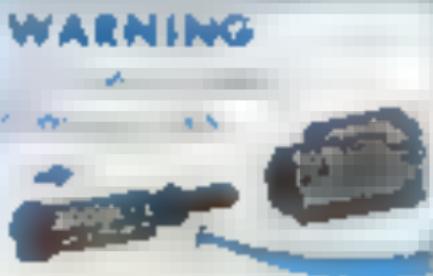
- 1 Insert spring and buffer



- 2 Insert actuator and spring



- 3 Push in actuator pin



- 4 Slide bolt into carrier



ASSEMBLY cont.



1 Replace bolt case pin



2 Drop in and seal



3 Put bolt back



4 Replace retaining pin

NOTE
Do not pull bolt back when bolt is being
replaced upside down



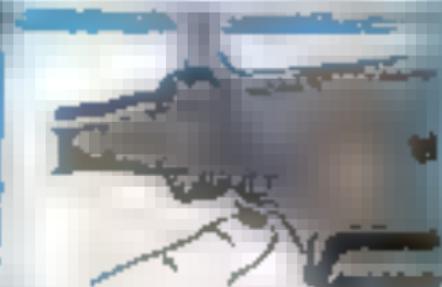
9 Engage then push
charging handle
part way



10 Slide in bolt
carrier group

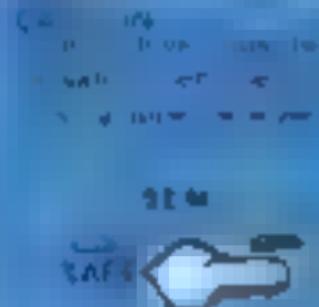


11 Push in charging
handle and bolt
carrier group together



13 Engage receiver
pivot pin

ASSEMBLY cont.



14 Close upper and lower receiver groups. Push on take-down pin.



15 PUT HANDGUARDS IN PLACE



REAR SIGHT
EYE GUARD
SIGHT



16 Snap on sling

DID YOU INSTALL EVERYTHING?

- *extractor & spring*
- *extractor pin*
- *bolt*
- *cam pin*
- *firing pin*
- *retaining pin*

EVERYTHING WILL WORK SMOOTHLY IF YOU HAVE ASSEMBLED ALL THE PARTS CORRECTLY

CHECK THE
selector lever
FOR PERFORMING THE
**FUNCTIONAL
CHECK**

SEE PAGE 33

MAGAZINE DISASSEMBLY

20 RD MAG

Release base catch



Remove base

30 RD MAG

Release base catch



Remove base

Jiggle spring and
follower to remove



MAGAZINE ASSEMBLY

CLEAN & LUBE

Wipe dirt from
tube spring and
follower then
lubricate tube spring

Wiggle spring and
follower to install



Slide the base
under all four tabs



1	2	3
4	5	6
7	8	9

PMCS* before operation and..



CHAMBER



BOLT

1 Remove excessive oil



4 Mag secure?



2 Extract bolt to assure free movement between bolt carrier and gas tube



5 Proper tension?

3 Perform functional check to assure selector lever works properly

next page

Then back to Step 4

• Preventive Maintenance Checks and Services

FUNCTIONAL CHECK

MILK, LIVER, MUSCLE

Highway Map of the State

SELECTOR LAYER ON

SEMI
BATE

SEM

safe

semi

auto

4. **ANSWER**

• $P_{\text{out}} = \text{power out} = \text{power in} - \text{losses}$

100% 100% 100%

מִתְּמִימָה כְּלָמָד בְּנֵי יִשְׂרָאֵל
בְּנֵי יִשְׂרָאֵל בְּנֵי יִשְׂרָאֵל
בְּנֵי יִשְׂרָאֵל בְּנֵי יִשְׂרָאֵל
בְּנֵי יִשְׂרָאֵל בְּנֵי יִשְׂרָאֵל

STANDARD DAYLIGHT SIGHT



STANDARD DAYLIGHT: Max. Max adjustment for range

Front 0 - 300 minutes dial

Rear 300 - 450 minutes dial

See page 33 for 5 gm weight

LOW LIGHT LEVEL SIGHT SYSTEM (Promethium Sight)

NOTE Not every site will have this sign!

• HEAR SIGHT



→ FRONT SIGHT

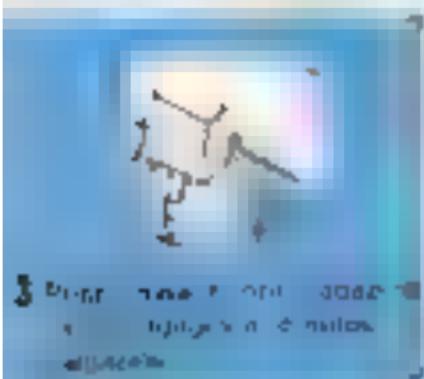
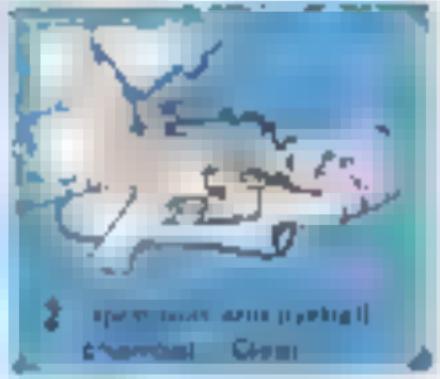


卷之三

For example, the following table shows the results of a survey of 1000 people regarding their favorite type of music. The data is presented in a frequency distribution table.

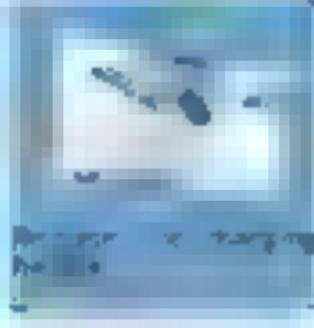
CAUTION The Δ

OPERATION - loading and



chambering a round

R TRANSFER 1 ED



BATTLESIGHT ZERO

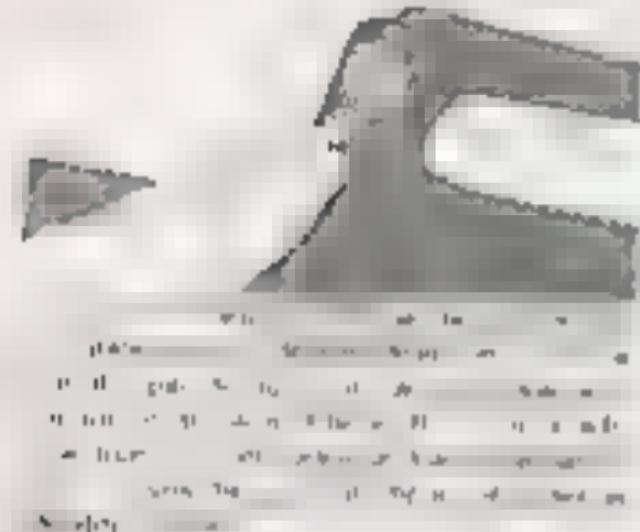
TO ZERO THE RIFLE YOU MUST HAVE THE FRONT SIGHT (ELEVATION) AND THE REAR SIGHT (WINDAGE) ADJUSTED SO THAT IT CAN HIT YOUR POINT OF AIM AT A GIVEN RANGE



NOTE

In order to battlesight zero you adjust your sights so you can hit an aiming point at 250 meters. Zeroing can also be accomplished on a 25 meter range by adjusting the sights so that the bullet will strike 2.4 centimeters below the point of aim. If M16A1 has a front sight and you can't see the wall after zeroing, turn front sight post one click down for use during periods of limited visibility.

SIGHT ADJUSTMENT

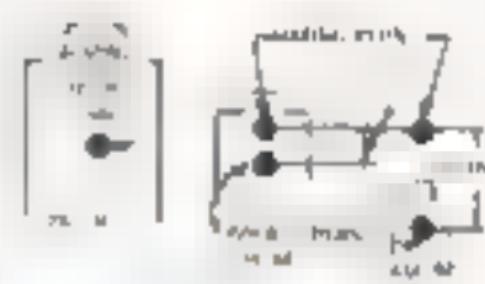


USING LOW LIGHT LEVEL (PROMETHIUM) SIGHT SYSTEM

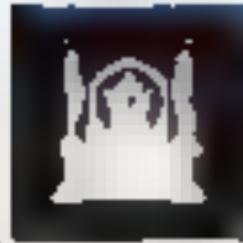
daylight firing



Gun type	Marksmen	Other types	Other
Marksmen	100% (100%)	100% (100%)	100% (100%)
AMM (100%)	100% (100%)	100% (100%)	100% (100%)
Urgent	100% (100%)	100% (100%)	100% (100%)
Priority	100% (100%)	100% (100%)	100% (100%)
Normal	100% (100%)	100% (100%)	100% (100%)



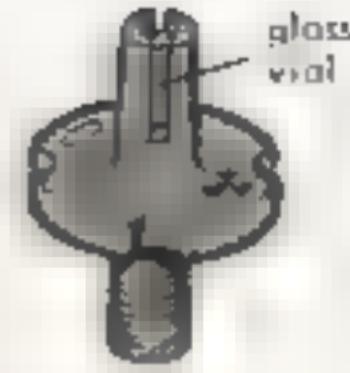
night and limited visibility



Gun type	Marksmen	Other
Marksmen	100% (100%)	100% (100%)
AMM (100%)	100% (100%)	100% (100%)
Urgent	100% (100%)	100% (100%)
Priority	100% (100%)	100% (100%)
Normal	100% (100%)	100% (100%)

Gun type	Marksmen	Other
Marksmen	100% (100%)	100% (100%)
AMM (100%)	100% (100%)	100% (100%)
Urgent	100% (100%)	100% (100%)
Priority	100% (100%)	100% (100%)
Normal	100% (100%)	100% (100%)

CARE & CLEANING of PROMETHIUM SIGHT handling and care



- The front post has a small glass vial containing radioactive Promethium 147
- Take care when handling - not to bump the front sight post
DO NOT abuse, damage or alter the post in any manner
- Frequently check the sight post for damage. If damage is evident or suspected, have it checked by your unit armorer

cleaning of front sight post

Clean with toothbrush, bore swabs and Rifle Bore Cleaner NBC, then dry.

IMMEDIATE ACTION

1 YOUR rifle stops firing before you do **SPORTS**
5 P.O.R.T.S. is an acronym* to help you remember
the following actions -- **S**top, **P**ull, **O**bserve, **R**em
Leave, **T**ap, **S**hoot.

S - STOP
P - PULL
O - OBSERVE
R - REMOVE
T - TAP
S - SHOOT



2 PULL Charging
handle to ready
lock **OBSERVE**
action of case or
cartridge. Eyes in
chamber and check
it does not fire



3 PULL Charging
handle to ready
lock **RELEASE**
magazine. Don't
use the charging
handle.



4 TAP Forward about



1 TAP upward on
magazine to make
sure it is properly
loaded



5 Now SHOOT it
again -- and take full
breath and apply
extremist effort

REMEDIAL ACTION

WARNING

DO NOT USE THE REMEDIAL ACTION FUNCTION IF YOU
DO NOT KNOW THE CAUSE OF THE PROBLEM. IT MAY
AGGRAVATE THE PROBLEM WHICH COULD DAMAGE YOUR SYSTEM.

File Edit View Insert Tools Options Help
Analog case



fault detected in
the system
exists

BY DR. R. R. SHASTRI'S TUTORIAL CHECK TROUBLESHOOTING

PROJECTILE LODGED IN BORE

WARNING

If an audible "POP" or reduced RECOIL is experienced during firing immediately CEASE FIRE, remove the magazine (1), rock the bolt to the rear (2), and place the selector lever on the "SAFE" position (3). Visually inspect and/or insert a cleaning rod into the bore to insure there is not a projectile lodged in the bore (4).



If a projectile is lodged in the barrel of the weapon, DO NOT attempt to remove it. Turn the weapon in to the armorer.

LIMITED PM CLEANING

CLEAR YOUR RIFLE



1 Look for fouling in bore and chamber



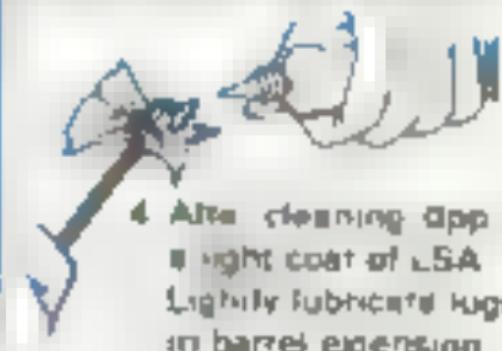
2 Remove bolt carrier group and clean carbon and oil from firing pin and all surfaces of bolt, bolt carrier with dry swabs. Clean

firing pin hole and bolt carrier key with pipe cleaner. Apply light coating of LSA paying special attention to sides and cam pin area



3 Swab out from chamber to muzzle

Oh yeah make sure swab goes clear through flash suppressor



4 After cleaning apply a light coat of LSA. Lightly lubricated bugs in barrel extension

UNUSUAL CONDITIONS

1. HUMID

- When a column is stored with dust
- When humidity is high
- When the temperature is high
- When the column is stored in a cold place
- When the column is stored in a hot place
- When the column is stored in a dry place

2. DRY

- When the column is stored in a dry place
- When the column is stored in a cold place
- When the column is stored in a hot place
- When the column is stored in a dry place
- When the column is stored in a cold place
- When the column is stored in a dry place

3. DUST

- When a column is stored in a dusty place

4. DUST & DRY

- When a column is stored in a dusty and dry place

5. DUST & HUMID

- When a column is stored in a dusty and humid place
- When a column is stored in a dusty and dry place

6. DUST & DRY & HUMID

- When a column is stored in a dusty, dry and humid place



AFTER FORDING

WARNING

HERE'S WHAT YOU DO:

*** AFTER YOU REMOVE THE CAP

POINT THE
MOTOR
UPWARD



FILL MASTODON
TANKS
WITH PREPARATED
AND CLEAN
WATER



RE-CAP MASTODON
TANKS AS
SHOWN AND
DRY THEM
OUT AND DRAKE
PORTS



CLEAN THE TANK HOLE WITH
A FINE GRAINED
CERAMIC



TROUBLESHOOTING

PROBLEM	CHECK FOR	WHAT TO DO
WON'T FIRE	Selector lever on SAFE Improper assembly of firing pin	Put it on SEM or AUTO Assemble correctly
	Too much oil in firing pin hole Defective spring Too much carbon on firing pin	Wipe off Replace and discard Clean
BOLT WON'T UNLOCK	Dirty or burned bolt	See your NCO or your unit ARMORER



TROUBLESHOOTING

PROBLEM	CHECK FOR	WHAT TO DO
WON'T EXTRACT	Broken extractor spring	See your ARMORER
	Dirty or corroded ammo	Remove Push out stuck round with cleaning rod
	Carbon in chamber Fouling or carbon in extractor recess or lip	Clean chamber Clean
WON'T FEED	Dirty or corroded ammo	Clean
	Dirty magazine	Clean
	Defective magazine	Replace
	Too many rounds in magazine	Take out excess
	Restricted buffer assembly action	Take out the buffer and spring, and clean

TROUBLESHOOTING

PROBLEM

CHECK FOR

WHAT TO DO

WEAK FEED

Magazine not fully seated

Adjust magazine catch

PRESS BUTTON ON
RIGHT SIDE



DOUBLE FEED

Defective magazine

Replace

Defective magazine

Replace

TROUBLESHOOTING

WON'T CHAMFER

Why?



Partly or not at all

• Why:

• Chamfer not active

• Chamfer off

Part chamfered but

• Chamfer not active or
chamfer not being used

• Chamfer off

• Chamfer not selected
or chamfered

• Chamfer not selected

• Chamfer off

• Chamfer

Chamfer

• Chamfer



TROUBLESHOOTING

PIRE FM

HE/LE FM

WHT/BLK

SHORT RECOIL

Gap in bolt rings
not staggered

Carbon or dirt in
the rear bore or on
outside of gas tube

BOLT FAILS TO LOCK AFTER LAST ROUND

Dusty or corroded
bolt leitch

Fouled magazine

SP. FCTDR LEVER B NDS

Needs oil

Staggering
gaps

Clear

Clear

Replace

Lubricate with LSA

TROUBLESHOOTING

22 P.F.M.

THE B.F.R.

WEIGHT CYCLE

B-L ARMER
22 M.R. 18

A round jammed be-
tween bolt and
charging handle

- 1 Remove magazine
- 2 Hold charging handle back and bring bolt carrier to the rear. (Bolt carrier must be held)



C A U T I O N If the round is removed,
gun is under tension

- 3 Remove bolt
a) Hold the
cartridge
in the gun
b) Pull the
handle to
load. Round
should fall
through
magazine well



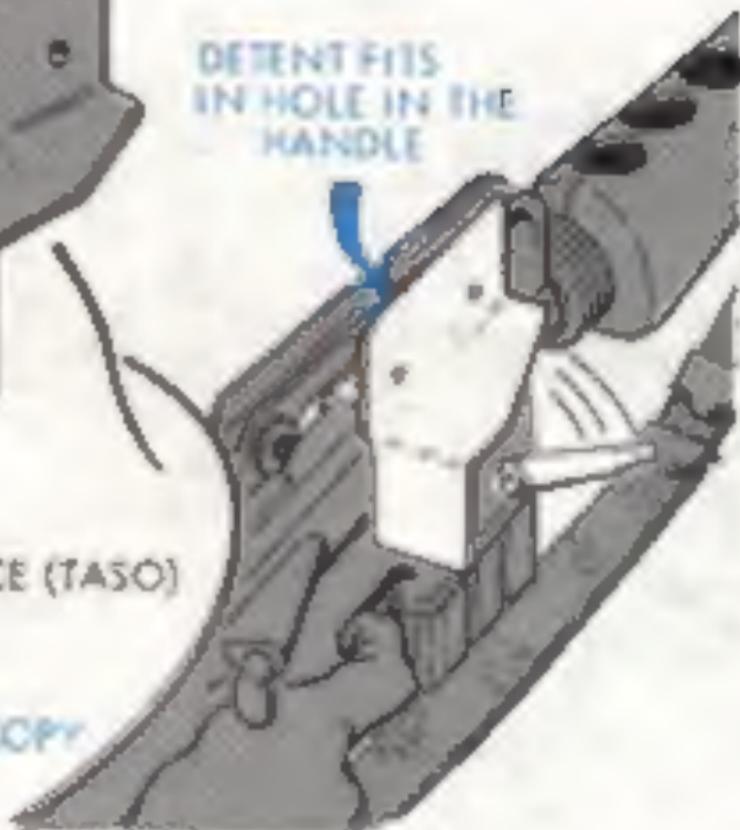
TROUBLESHOOTING

PROBLEM	CHECK FOR	WHAT TO DO
CAN I SEE PROMETHEUM SIGHT POST?	Check for alignment of luminous elements Luminous elements dirty	Rotate front sight post up or down one click Clean post by cleaning solution
	Luminous element broken or missing	Turn in to REMORER

FOR LEFTYS'



DETENT FITS
IN HOLE IN THE
HANDLE



There is a cartridge deflector,
for left hand shooters,
available from:

TRAINING AIDS SERVICE OFFICE (TASO)
ATTN: ATZJ-DPTA
FORT JACKSON, SC 29207

SEND ONE BUCK (\$1.00) PER COPY

SARGE'S INSPECTION

Sarge'll gig yo if the following items are not clean....

BOLT,
SIGHTS,
RECEIVER,
CHARGING HANDLE,
HANDGUARDS,
GAS TUBE & PORTS,
STOCK DRAIN HOLE,
BOLT & FLASH SUPPRESSOR,
MAGAZINE CATCH &
MAGAZINE WELL



He'll also check the overall condition of the
SIGHTS, BIPOD, STOCK, & HANDGUARDS
So, be prepared, keep it clean and lubed.

DID WE GOOF?
DO YOU KNOW A BETTER WAY?
DON'T KEEP THOSE GRIPES TO YOURSELF
WE'D LIKE TO HAVE YOUR IDEAS

